

KAIKOURA AND THE EDWARD PERCIVAL FIELD STATION:

A BRIEF OVERVIEW

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Kaikoura has a long history of human settlement and as its name suggests, there has been a long association with the sea and the animals within it. General accounts of the history of the region can be found in Elvy (1949) and Sherrard (1966), including details of the Maori occupation and the subsequent discovery, exploration and settlement of the area by European travellers.

The geologists appear to have carried out much of the scientific research during the nineteenth century (see for example Buchanan, 1848, and the bibliography contained within this issue of *Mauri Ora*), while the archeological importance of the region became apparent with the discovery of the first Moa Hunter's grave complete with a moa egg, during preparatory work on the foundations of Fyffe House. Indeed archeological work has been actively progressing at Kaikoura for well over one hundred years (Enys, 1872; Hector, 1872) and continues today (McCulloch, 1985).

One of the earliest reports from the biological sciences was a paper by Aston (1916) on the botany of "Tapuaenuku", while the marine plant life was investigated by Victor Lindauer who (in 1945) collected a total of 354 specimens of algae. He produced four *essiccate* sets, one of which is retained at the Edward Percival Field Station. Zoological work was also developing at this time, mainly in the fields of ornithology and marine biology.

During the 1950's the Biology Department (later the Zoology Department) of the University of Canterbury made their first field trips to Kaikoura during the May and August vacations, using as a base the facilities of the Kaikoura High School. The Edward Percival Marine Laboratory was constructed to provide permanent accommodation for these courses, being named after the late Edward Percival, Professor of Biology 1929-1955 and Professor of Zoology

1955-1959. Throughout his period as Head of Department, field work occupied a central and very important place in the teaching of zoology, and shortly before his death negotiations were initiated to secure a site on the Kaikoura peninsula for the Marine Laboratory. Negotiations were completed in 1960 and under the guidance of the new Head of Department, Professor George Knox, building work commenced in 1961. The partially completed building was first used for a student field course in May 1962 and the official opening was held on March 9th, 1963. Since that time there has been an unbroken record of student field trips to Kaikoura during both the May and August vacations and this tradition will continue.

As the name "Marine Laboratory" implies, the emphasis during the first ten years was very much on the marine environment, with many research students carrying out full time research at Kaikoura under the supervision of George Knox. However, from the early 1970's, the full potential of the Kaikoura region as a base for many branches of the natural sciences was realised and this prompted a name change to the Edward Percival Field Station. In particular, an area of native bush (Kowhai River Reserve) designated as a reserve for flood protection purposes was recognised as being important both for its avian and invertebrate fauna and is currently a site of intensive study. The reserve is overseen by a Scientific Advisory Committee which includes a representative from the Field Station.

The present Field Station was constructed over twenty years ago specifically as a teaching facility, although it has also been a base and "home" for many research workers. As a teaching facility it has served its function well, catering for many departments of the University of Canterbury, both as a base for field related studies and also as a venue for seminars and discussion groups. In addition it caters for several high school groups and provides accommodation for visiting workers and scientists from government departments such as Wildlife Service, Geological Survey, Ministry of Agriculture and Fisheries, plus Museum Staff from Canterbury and Wellington. Accommodation can be provided for up to 30 people with communal cooking and common room facilities. There is a large, well equipped laboratory with an excellent seawater system. Some limited space is available for private study and this includes microcomputer facilities.

Constant demand for research accommodation, unhindered by possible problems generated by the presence of large groups of students has prompted the construction of a new research wing at the Field Station. Building began in May 1985 and the completed structure (to be named after Prof. George Knox) will be officially opened in March 1986. Designed specifically for research workers, it has all of the advantages of being part of the Field Station as a whole, plus the obvious advantage of being a separate facility. Accommodation will be provided in self contained flats allowing some degree of privacy for long term workers. The research part

of the building is designed around several rooms with the emphasis on flexibility, allowing the structure to be altered to cater for whatever workers are there at any particular time. The facilities will include seawater and freshwater tanks, large dissecting and sorting areas, laboratory space with running seawater, plus "dry" areas for research requiring much electrical equipment.

CLIMATE

The Edward Percival Field Station is fortunate to be situated within 500 meters of the N.Z. Meteorological Service, Kaikoura Office (42 25'S, 173 42'E).

The office, situated on the peninsula 105 m above sea level, has been established since 1964 though some records go back further than that (rainfall from 1949 and sunshine from Jan. 1960).

The office provides an invaluable service to many sectors of the community (farmers, fishermen, pilots, and of course, scientists). With an exposed coast and the Seaward Kaikoura Range dominant along the coast the effect on weather patterns is unique and volatile. Predictions on weather patterns are available at any time and monthly summary reports are available dating back 21 years.

The following are yearly averages for meteorological observations, provided by the N.Z. Meteorological Office at Kaikoura.

SUNSHINE

Average sunshine (1960-1981) 2049.8 hours
Maximum no. of consecutive days without sunshine = 8 in
June 1971
Dullest month June 1981 (60.1 hours of sunshine).

PRECIPITATION

Normal rainfall	865mm per year
Greatest rainfall in one day (9am-9am)	235mm 2&3 March 1980
Greatest rainfall in one month	401mm April 1978
Greatest rainfall in one year	1320mm 1974
Lowest rainfall in one month	1mm September 1980
Lowest rainfall in one year	416mm 1964
Days of fog (average 1964-1980)	25.4
Days of hail (average 1964-1980)	6.2

TEMPERATURE

Normal temperature	12°C
Highest maximum temperature	33°C on 9 February 1974
Lowest screen minimum	-0.6°C on 11 June 1964
Lowest grass minimum	-9.6°C on 8 August 1976

During the 1981, 1982 and 1983 breeding season for birds in Kowhai Bush, G. Sherley maintained a weather station at Kowhai Bush. The station was situated in a bush clearing 100 m from the forks at the end of Schoolhouse Road. Data was recorded on a calibrated Casella hygrothermograph. (see Sherley & Cunningham this issue of *Mauri Ora* for map).

The following is a table of average maximum and minimum mean temperatures recorded by G. Sherley.

	Aug	Sep	Oct	Nov	Dec	Jan
1981 max	13.0	15.7	16.6	17.4	21.2	23.1
min	4.9	3.1	5.1	8.4	11.4	9.8

Overall monthly averages for the period Aug 1981-Dec 1983 were:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
15.9	14.5	13.8	11.5	9.0	7.0	6.7	8.1	9.0	9.8	12.3	13.5

HYDROLOGY - Sea surface temperatures

Sea surface temperatures have been recorded off the Kaikoura coast by the following workers:

Off-shore

Garner 1954
Garner 1961
Houtman 1965
Grieve 1965
Reid 1972

In-shore

Rasmussen 1965 (Oct 1963 - Sept 1964)
McGregor 1965 (rockpools over 24 hour period)
Dix 1970 (deeper in-shore)
Dix 1970 (March 1967 - Nov 1968)
Poore 1973 (July 1967 - July 1968)
Ottaway 1976 (Feb 1973 - March 1975)
van Berkel Oct 1978 to present time at weekly intervals.

Sea surface temperatures recorded at the New Wharf range between 8°C and 18°C.

HYDROLOGY - Salinity

Salinities recorded off the Kaikoura coast are as follows:

Off-shore

Grieve 1965

In-shore

Rasmussen 1965 (Aug 1963 - Mar 1964)

N.Z.O.I. 1978-1983.

Salinity showed very little seasonal variation ranging from 33‰ to 35‰.

References can be found in the Kaikoura bibliography in this issue of *Mauri Ora*.